

**AMENDMENTS TO THE CLAIMS:**

1.-6 (Cancelled)

7. (New) A method for detecting a device which causes a bit reversal when the device is in trouble, comprising:

demultiplexing a first serial signal into D(1)-D(N) signals,

inputting the D(1)-D(N) signals into devices E(1)-E(N-1) and a channel marking device E(N) respectively,

outputting D'(1)-D'(N-1) signals from the devices E(1)-E(N-1) and a D'(N) signal from the channel marking device E(N), wherein the channel marking device E(N) outputs the D'(N) signal by changing the D(N) signal by a certain changing method,

multiplexing the D'(1)-D'(N) signals into a second serial signal,

finding the D'(N) signal in the second serial signal which has a bit reversal,

detecting a device E(X) which causes the bit reversal based on bit positions of a D'(X) signal and the D'(N) signal, wherein an order of bits between the first and the second serial signals is maintained.

8. (New) The method for detecting a device according to claim 1, wherein the certain changing method is all bits reversal.

9. (New) An apparatus for detecting a device which causes a bit reversal when the device is in trouble, comprising:

means for demultiplexing a first serial signal into D(1)-D(N) signals,

means for inputting the D(1)-D(N) signals into devices E(1)-E(N-1) and a channel marking device E(N) respectively,

means for outputting  $D'(1)$ - $D'(N-1)$  signals from the devices  $E(1)$ - $E(N-1)$  and a  $D'(N)$  signal from the channel marking device  $E(N)$ , wherein the channel marking device  $E(N)$  outputs a  $D'(N)$  signal by changing the  $D(N)$  signal by a predetermined changing method,

means for multiplexing the  $D'(1)$ - $D'(N)$  signals into a second serial signal,

means for finding the  $D'(N)$  signal in the second serial signal which has a bit reversal,

means for detecting a device  $E(X)$  which causes the bit reversal based on bit positions of a  $D'(X)$  signal and the  $D'(N)$  signal, wherein an order of bits between the first and the second serial signals is maintained.

10. (New) The apparatus for detecting a device according to claim 3, wherein the predetermined changing method is all bits reversal.